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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,761	12/21/2001	Zhian Li	LUC-310/Li 2-7	3753
32205	7590	09/14/2005	EXAMINER	
PATTI & BRILL ONE NORTH LASALLE STREET 44TH FLOOR CHICAGO, IL 60602			DYKE, KERRI M	
			ART UNIT	PAPER NUMBER
			2667	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/027,761	<b>Applicant(s)</b> LI ET AL.	
	<b>Examiner</b> Kerri M. Dyke	<b>Art Unit</b> 2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 6 elements 611 and 623. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the distribution" in line 7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8, and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Frank (US 4,491,947).

In regards to claim 1, Frank discloses a method comprising: receiving, at a local switch, a plurality of calls that are comprised of at least one packet-switched call and at least one circuit-switched call (column 3 line 53); determining a measure of the plurality of calls; based on the measure of the plurality of calls, allocating to circuit-switched calls a first set of resources from a plurality of resources between the local switch and a network switch and allocating to packet-switched calls a second set of resources from the plurality of resources between the local switch and the network switch. In column 1 lines 10-20 it is disclosed that the invention is described to work on a switch located within a satellite, but would work equally well in a terrestrial environment. Use in a terrestrial environment is also disclosed in column 3 lines 57-64. Column 5 lines 6-10 disclose that the traffic is measured and the demand is entered into a traffic matrix, which is used for efficient scheduling, i.e. resources are allocated to the calls based upon the measure of the calls. The allocator, or scheduler, is described in column 5 lines 60-67. Frank's disclosed embodiment discloses the use of only one switch, but also discloses in column 3 line 61 that local switched system is an alternative embodiment. A switched system inherently has at least two switches, one of which can be labeled local and the other network.

In regards to claim 2, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of circuit-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

In regards to claim 3, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of circuit-switched calls. The number of calls is a type of traffic therefore it is inherently included in the method for measuring traffic disclosed in column 5 lines 7-10.

In regards to claim 4, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of packet-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

In regards to claim 5, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of packet-switched calls. The number of calls is a type of traffic therefore it is inherently included in the method for measuring traffic disclosed in column 5 lines 7-10.

In regards to claim 6, Frank discloses the method of claim 1, further comprising the step of informing, by the local switch, the network switch of the allocation of the first set of resources and the second set of resources. Column 9 lines 30-31 disclose that the switch schedule, i.e. the resource allocations, is broadcast to the network switch by the local switch.

In regards to claim 8, Frank discloses the method of claim 1, further comprising the steps of: determining a second measure of the plurality of calls; when the second measure of the plurality of calls differs from first measure of the plurality of calls by a predetermined threshold, reallocating the plurality of resources between the local switch and a network switch between

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packet-switched resources and circuit-switched resources. Column 5 line 18 discloses that the process of resource assignment is repetitive. Column 5 lines 67-68 and column 6 lines 1-2 disclose that each time slot's traffic matrix is based upon the previous traffic matrix assignments and new requests. In this case the predetermined threshold is any change in demand between time slots. The amount of resources assigned to circuit versus packet traffic is always changing based upon any changes in the demand matrix.

In regards to claim 11, Frank discloses a local switch (Figure 6) comprising: a receiver (labeled "from ground stations") for receiving a plurality calls comprising at least one packet-switched call and at least one circuit-switched call; a processor (element 4 labeled controller, which is well known in the art to be interchangeable with processor.) arranged and constructed to determine a measure of the plurality of calls (element 6) and, based on the distribution, allocating a plurality of resources (element 8) between packet-switched resources and circuit-switched resources, wherein the plurality of resources link the local switch and a network switch.

In regards to claim 12, Frank discloses the local switch of claim 11, wherein the processor is further arranged and constructed to determine a second measure of the plurality of calls and, based on the second distribution, reallocating the plurality of resources between packet-switched resources and circuit-switched resources. Column 5 line 18 discloses that the process of resource assignment is repetitive. Column 5 lines 67-68 and column 6 lines 1-2 disclose that each time slot's traffic matrix is based upon the previous traffic matrix assignments and new requests. In this case the predetermined threshold is any change in demand between time slots. The amount of resources assigned to circuit versus packet traffic is always changing based upon any changes in the demand matrix.

In regards to claim 13, Frank discloses the local switch of claim 11, wherein the measure of the plurality of calls is a measure of circuit-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

In regards to claim 14, Frank discloses the local switch of claim 11, wherein the measure of the plurality of calls is a distribution of calls between circuit-switched and packet-switched. The distribution of calls is the ratio of packet to circuit switched calls. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix. The ratio, or distribution, is inherently known because both the number of packet and circuit switched calls is known.

In regards to claim 15, Frank discloses the local switch of claim 11, further comprising a transmitter (Figure 6 labeled "to ground stations") for sending the distribution to the network switch.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 9, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 4,491,947) in view of Chan et al. (US 4,556,972).

In regards to claim 7, Frank discloses the method of claim 6, further comprising the step of allocating a plurality of network resources between packet-switched resources and circuit-switched resources based on the allocation of the first set of resources and the second set of

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resources, wherein the plurality of network resources link the network switch and at least one other switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

In regards to claim 9, Frank discloses the method of claim 8, further comprising the steps of: informing, by the local switch, the network switch of the reallocation of the plurality of resources; reallocating, by the network switch, a plurality of network resources between packet-switched resources and circuit-switched resources based on the reallocation of the plurality of resources, wherein the plurality of network resources link the network switch and at least one other switch. Column 9 lines 30-31 disclose that the switch schedule, i.e. the resource allocations, is broadcast to the network switch by the local switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

In regards to claim 16, Frank discloses a network switch comprising: a line processor, arranged and constructed to process packet-switched calls and circuit-switched calls (Figure 6 element 4); a resource processor, arranged and constructed to allocate a plurality of network



resources between packet-switched calls and circuit-switched calls (Figure 6 element 8). Frank does not disclose wherein the plurality of network resources links the network switch and at least one other switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

In regards to claim 17, Frank and Chan et al. discloses the network switch of claim 16, wherein the call processor is further arranged and constructed to receive, from another switch, a request of allocation of resources between packet-switched calls and circuit-switched calls and, based on the request, to reallocate the plurality of network resources between packet-switched calls and circuit-switched calls. Frank discusses reallocation of resources in column 10 lines 30-43. Chan et al. also discusses reallocation of resources in column 6 lines 46-56.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 4,491,947) in view of Gao et al. (US 6,738,350).

In regards to claim 10, Frank discloses the steps of claim 1, but not a computer-readable signal-bearing medium comprising computer readable program code that performs the steps of claim 1.

Gao et al. discloses using computer readable medium in column 16 lines 58-60.

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It would have been obvious to one of ordinary skill in the art to place the steps of resource allocation as taught by Frank and put them onto a computer readable medium as taught by Gao et al.

The motivation for doing so would have been to allow the use of the latest techniques without costly replacement of hardware. It is relatively easy to replace software code by uploading the code through the network. On the other hand, it is quite costly to replace hardware, as disclosed in column 1 lines 62-66.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Berger et al. (US 6,882,640) discloses a hub-type device, which includes switches, that allocates resources between circuit and packet switched calls.
- b. Ando (US 4,392,222) discloses a technique for combining a circuit and a packet switched network, including the use of a processor.
- c. Takeuchi et al. (US 4,569,041) discloses a technique for combining a circuit and a packet switched network


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerri M. Dyke whose telephone number is (571) 272-0542. The examiner can normally be reached on Monday through Friday, 8:10 am - 4:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmd

  
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SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2667 9/12/05